

Claims

I claim:

1. A method for scheduling access to processor resources of a database, the method comprising the steps of:
- initiating database sessions in response to user logon;
- initiating tasks in response to commands received from a database session;
- classifying each task in one of a first set of groups based at least in part on one or more logon account attributes associated with the session that initiated that task;
- assigning a weight to each group of the first set of groups;
- classifying each task in one of a second set of groups;
- assigning a weight to each group of the second set of groups; and
- limiting each task's access to processor resources of the database based at least in part on the weight of the group from the first set in which that task is classified and also based at least in part on the weight of the group from the second set in which that task is classified.
2. The method of claim 1 where classifying each task in one of the second set of groups includes:
- classifying each database session in one of a third set of groups based at least in part on one or more logon account attributes associated with that session;
- assigning one or more time periods to each group of the third set of groups;
- for each time period, assigning a group of the second set of groups;
- determining the current time; and
- classifying each task in the group of the second set of groups corresponding to the time period for the group of the third set of groups in which the session that initiated that task is classified that includes the current time.
3. The method of claim 1 where classifying each task in one of the first set of groups includes:
- classifying each database session in one of a third set of groups based at least in part on one or more logon account attributes associated with that session;
- associating each group in the third set of groups with one group of the first set of groups; and
- classifying each task in the group of the first set of groups that is associated with the group of the third set of groups in which the session that initiated that task is classified.

4. The method of claim 1 where classifying each task in one of the second set of groups includes:
classifying each database session in one of a third set of groups based at least in part on one or
more logon account attributes associated with that session;
assigning one or more resource usage ranges to each group of the third set of groups;
for each resource usage range, assigning a group of the second set of groups;
determining a recent resource usage of each session; and
classifying each task in the group of the second set of groups corresponding to the resource
usage range for the group of the third set of groups in which the session that initiated
that task is classified that includes that session's recent resource usage.
5. The method of claim 4 where the recent resource usage is a current resource usage.
6. The method of claim 4 where the recent resource usage is a measurement of processor and
input/output usage during a preceding time period.
7. The method of claim 6 where the preceding time period is 60 seconds.
8. The method of claim 1 where the extent to which access is limited is recalculated periodically.
9. The method of claim 1 further comprising the step of:
providing device driver access to tasks in order of a priority based at least in part on the weight
of the group from the first set in which each task is classified and also based at least in
part on the weight of the group from the second set in which each task is classified.

10. A computer program, stored on a tangible storage medium, for scheduling access to processor resources of a database, the program comprising executable instructions that cause a computer to initiate database sessions in response to user logon;
initiate tasks in response to commands received from a database session;
5 classify each task in one of a first set of groups;
assign a weight to each group of the first set of groups;
classify each task in one of a second set of groups;
assign a weight to each group of the second set of groups; and
limiting each task's access to processor resources of the database based at least in part on the weight of the group from the first set in which that task is classified and also based at least in part on the weight of the group from the second set in which that task is classified.

11. The computer program of claim 10 where tasks are classified in one of the first set of groups based at least in part on one or more logon account attributes associated with the session that initiated that task.

12. The computer program of claim 10 where the executable instructions that cause a computer to classify each task in one of the second set of groups include executable instructions that cause a computer to:

20 classify each database session in one of a third set of groups based at least in part on one or more logon account attributes associated with that session;

assign one or more time periods to each group of the third set of groups;

for each time period, assign a group of the second set of groups;

determine the current time; and

25 classify each task in the group of the second set of groups corresponding to the time period for the group of the third set of groups in which the session that initiated that task is classified that includes the current time.

13. The computer program of claim 10 where the executable instructions that cause a computer to classify each task in one of the first set of groups include executable instructions that cause a computer to:

5 classify each database session in one of a third set of groups based at least in part on one or more logon account attributes associated with that session;
associate each group in the third set of groups with one group of the first set of groups; and
classify each task in the group of the first set of groups that is associated with the group of the third set of groups in which the session that initiated that task is classified.

14. The computer program of claim 10 where the executable instructions that cause a computer to classify each task in one of a second set of groups include executable instructions that cause a computer to:

classifying each database session in one of a third set of groups based at least in part on one or more logon account attributes associated with that session;
assigning one or more resource usage ranges to each group of the third set of groups;
for each resource usage range, assigning a group of the second set of groups;
determining a recent resource usage of each session; and
classifying each task in the group of the second set of groups corresponding to the resource usage range for the group of the third set of groups in which the session that initiated that task is classified that includes that session's recent resource usage.

20 15. The computer program of claim 14 where the recent resource usage is a current resource usage.

16. The computer program of claim 14 where the recent resource usage is a measurement of processor and input/output usage during a preceding time period.

17. The computer program of claim 16 where the preceding time period is 60 seconds.

25 18. The computer program of claim 10 where the extent to which access is limited is recalculated periodically.

19. The computer program of claim 10 where the executable instructions further cause a computer to:
provide device driver access to tasks in order of a priority based at least in part on the weight of the group from the first set in which each task is classified and also based at least in part on the weight of the group from the second set in which each task is classified.

20. A scheduled resource access database system, comprising:
- one or more nodes;
 - a plurality of CPUs, each of the one or more nodes providing access to one or more CPUs;
 - a plurality of virtual processes, each of the one or more CPUs providing access to one or more virtual processes;
- 5
- each virtual process configured to manage data stored in one of a plurality of data-storage facilities; and
 - a priority scheduler component configured to control access to the virtual processes by sessions of the database system, the priority scheduler component configurable to classify tasks initiated by sessions in at least two different groups at the same time and limit access to the virtual processes by each task based at least in part on two groups in which that task is classified.
- 10
21. The database system of claim 20 further comprising a clock and where the priority scheduler component is configurable to classify a task initiated by user in a group based at least in part on the time of day.
22. The database system of claim 20 further comprising a resource usage monitor that is configurable to record recent resource usage of a session and where the priority scheduler component is configurable to classify a task initiated by a session in a group based at least in part on that session's recent resource usage.
- 15